CCMD Roundtable

Part III: Belgium specifics

29th of November | Elia

Objectives and guidelines of the Roundtable

Set-up of the Roundtable (BE-specific)**:**

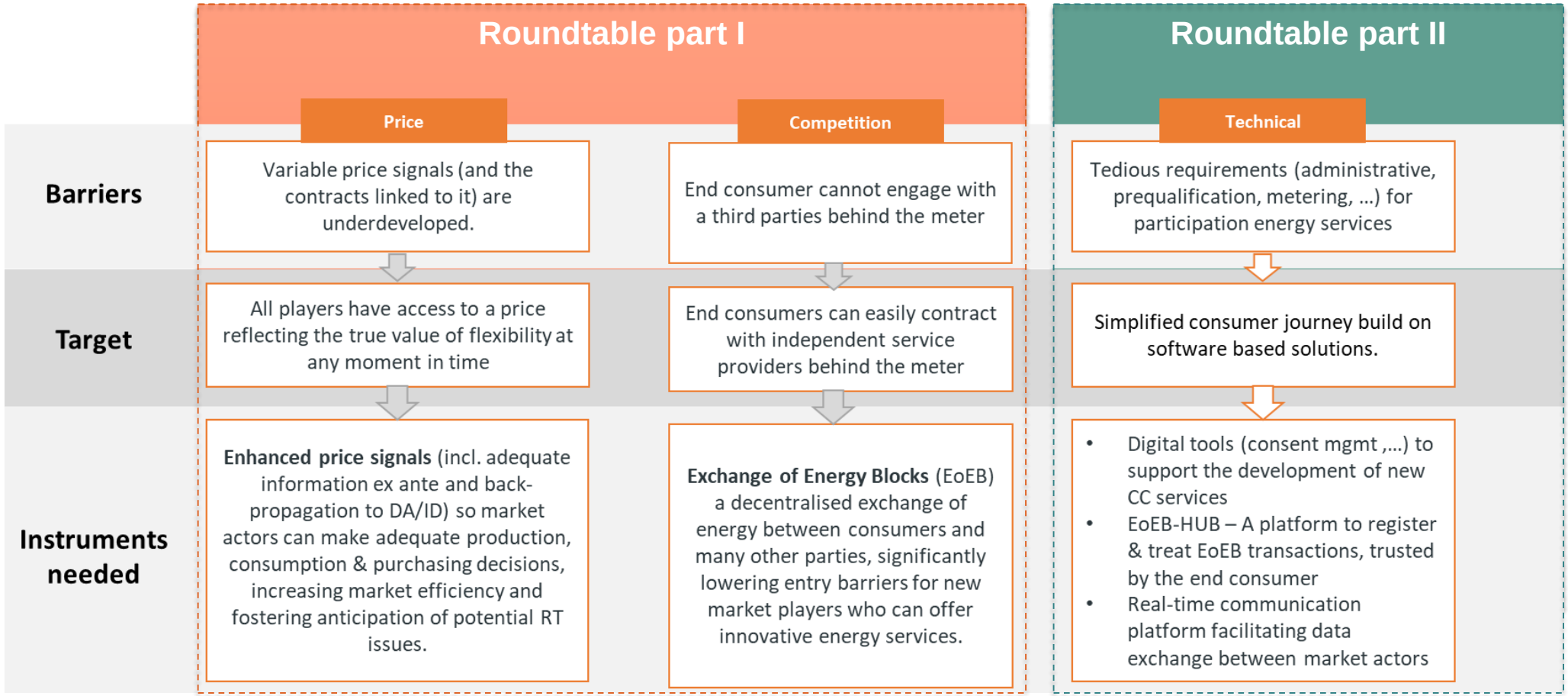
- Questions from BE market parties were clustered in function of several topics
- Each topic will be introduced via a short presentation of Elia, after which an open roundtable discussion will be held

  - ➢ **Objective** of this roundtable discussion is to have an open exchange with stakeholders and acquire additional insights on **BE-specific topics**

Topics:

- Introduction to Elia's system balancing philosophy
- How to facilitate participation of third party aggregators (link with Transfer of Energy)?
- How to improve the participation conditions (ex. prequalification) in the balancing market
- CCMD use-cases in Belgium
- Hackathon feedback

Recap previous roundtables



Focus of this Roundtable

The participation of explicit LV-flexibility in the balancing market (BE-specific)

- Elia's system balancing philosophy
- How to facilitate participation of third party aggregators (link with Transfer of Energy)?
- How to improve prequalification conditions on LV-level?

Elia’s system balance philosophy

In CCMD the consumer wins twice

COMMERCIAL EXCHANGES BETWEEN MARKET PARTIES

- Peer-to-peer trading
- Power Purchasing Agreements (PPAs)
- ...

FLEXIBILITY SERVICES

- Optimised consumption managed by specialised third parties
- Participation in flexibility markets (ex. balancing, congestion)
- ...

CCMD

ENHANCED TRACEABILITY

- Direct sourcing of green energy
- Insight on RES proportion from supply contract (ex. recognition of the origin of the energy used by Evs)
- ...

SUPPLY SPLIT AND ENERGY COMMUNITIES

- Specific supply contract per individual appliance
- Supplier per EV instead of supplier per charging pole
- Shared solar production by a community
- ...

More/better services

More efficient system operations

Our current reactive balancing model consists of a mix of implicit and explicit balancing

Belgium's **reactive balancing model** maximizes the opportunities for BRPs to balance their positions on the wholesale market over the imbalance settlement period (ISP), and helps balancing the system by reacting to an imbalance price

Implicit balancing by the BRP

incentivized by adequate imbalance prices to prepare their balance and/or help* the Balancing Area

- early adoption of single, marginal pricing
- short ISP
- application of an alpha adder when needed

enabled by adequate publications (mainly real-time SI and imbalance prices) and a facilitation of close-to-real-time (15') intraday trading

Elia should only address **residual imbalances**

Elia does this by activating **balancing reserves** (contracted or not)

BSPs - Efficient explicit balancing

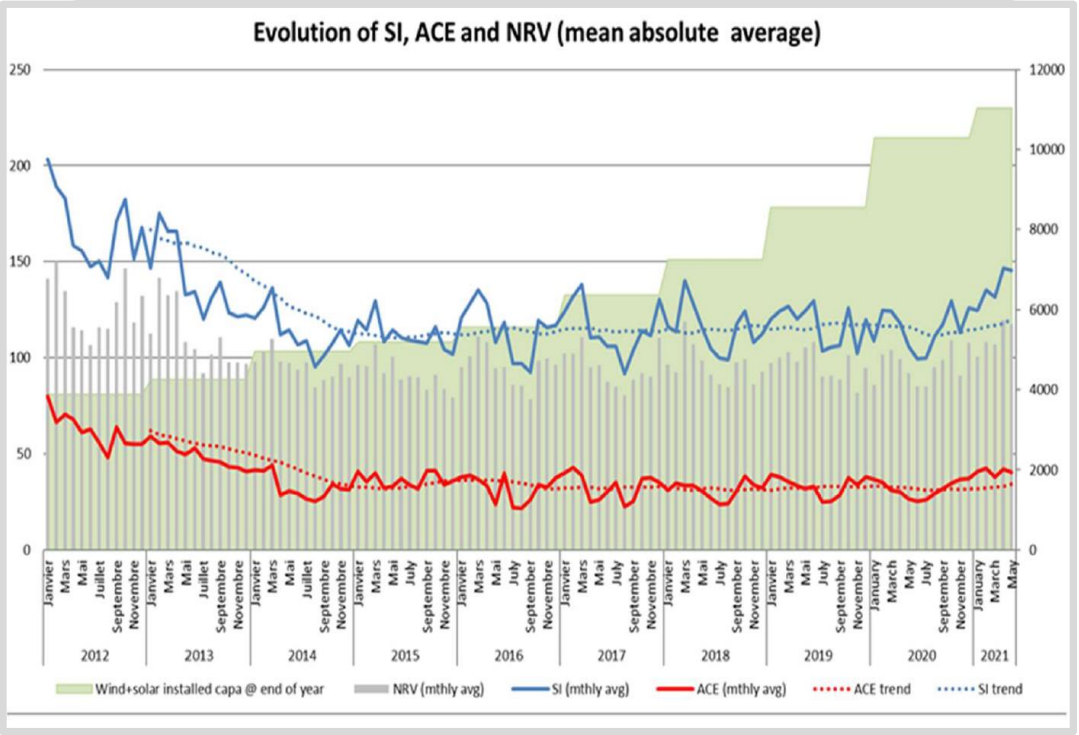
by not procuring more reserves **than necessary** (cf. dyn. dimensioning, reserve sharing, free bids)

by **opening the service to all** technologies and voltage levels

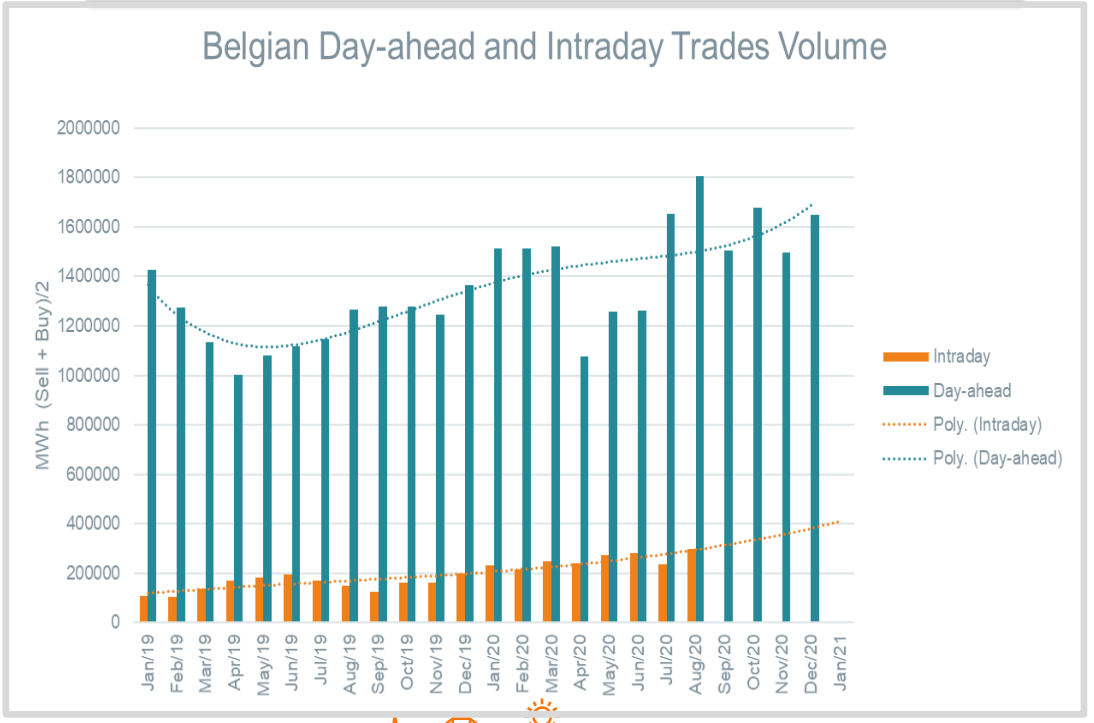
by **developing XB synergies** for activating balancing energy

The reactive balancing model proves to be successful and is fit for the future

Reactive balancing has proven successful, allowing an overall decrease and stabilization of the system imbalance (and ACE) despite a significant increase in RES production



The importance of self/reactive-balancing and (15') local ID trading keeps increasing for managing fluctuations in RES production and meet climate ambitions

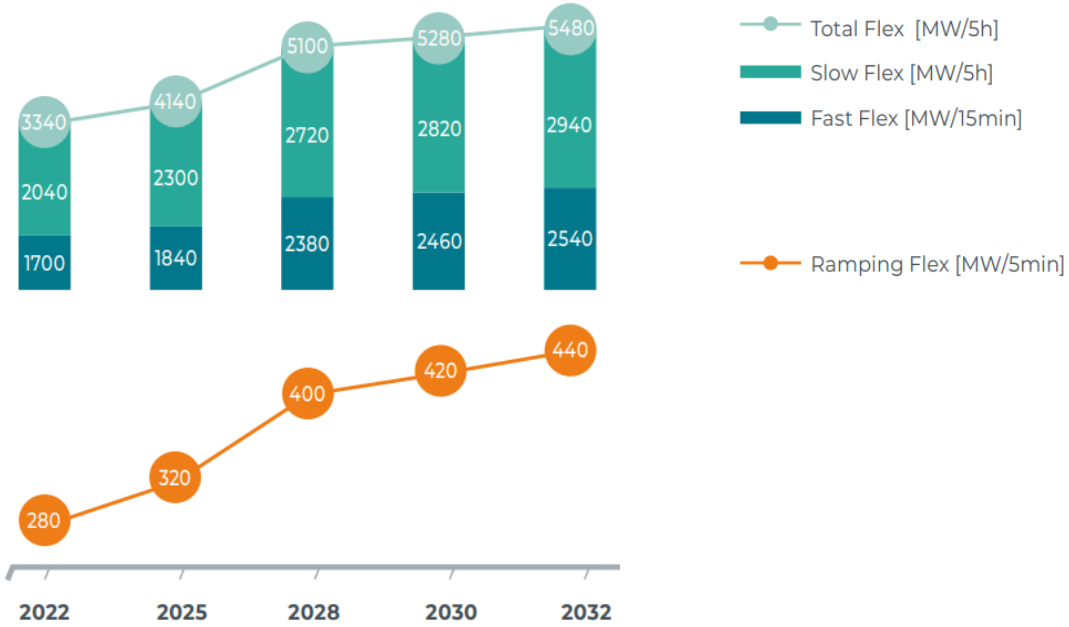


Increasing renewable generation will increase the flexibility needs of the system…

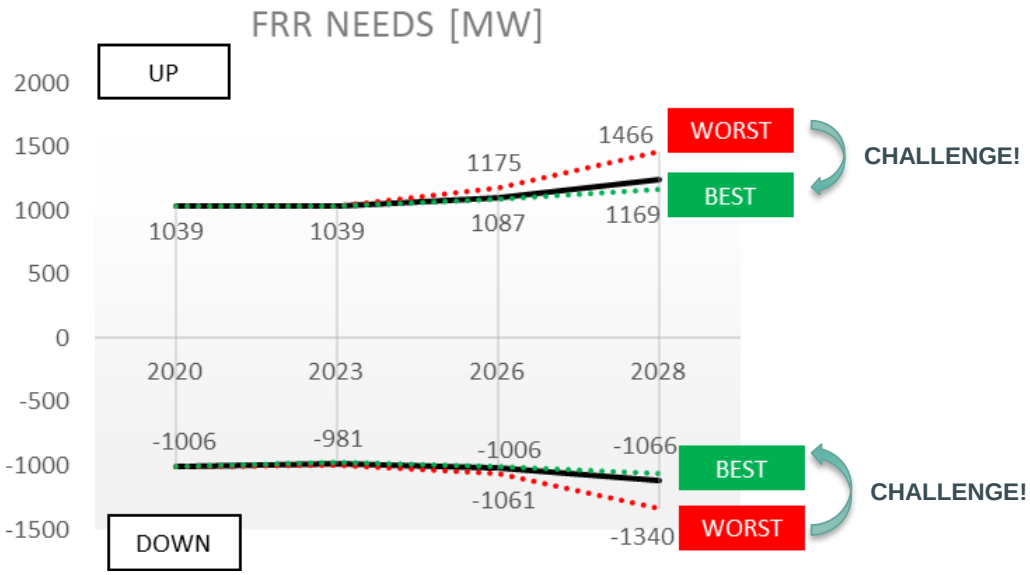
Increasing flexibility needs

Business as usual

Will increase reserve capacity needs



Upward flexibility needs (source: Adeqflex 2021)

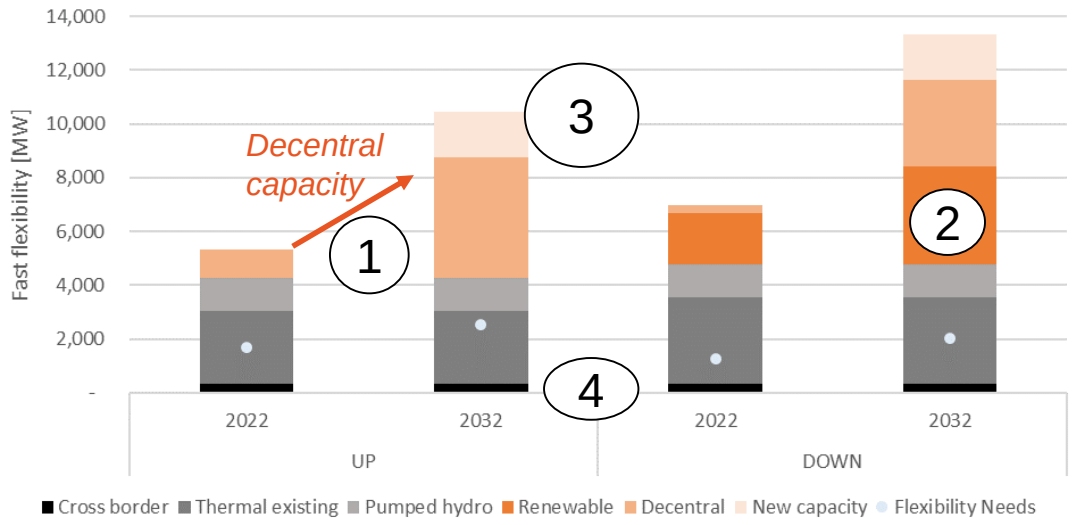


Reserve capacity projections (source: MOG 2 system integration study)

Only few degrees of freedom to manage flexibility needs

The extent to which FRR needs will increase can be managed by the LFC block imbalances (market balancing performance) and managing the dimensioning incident (not exceeding 1 GW)

Increased and diversified flexibility will result in operational security and economic efficiency for the system



1. **Flexibility means will increase substantially** towards 2032, mainly due to the increase in decentralized battery storage and demand-side management if properly enabled (digitalization, CCMD…)
2. **Renewable generation** management **will contribute** to downward flexibility
3. **Additional thermal flexibility** is expected following the nuclear phase out
4. **Cross-border flexibility** will become available as from 2022 with the EU balancing platforms

source: Adeqflex 2021

Efficient reserve management will become a key aspect in the energy transition

Increasing flexibility needs

Covered by flexibility means

Driven by generation mix

DIMENSION smartly

Price-based (implicit)

Volume-based (explicit)*

** SOGL minimum = dimensioning incident*

Non-contracted FRR

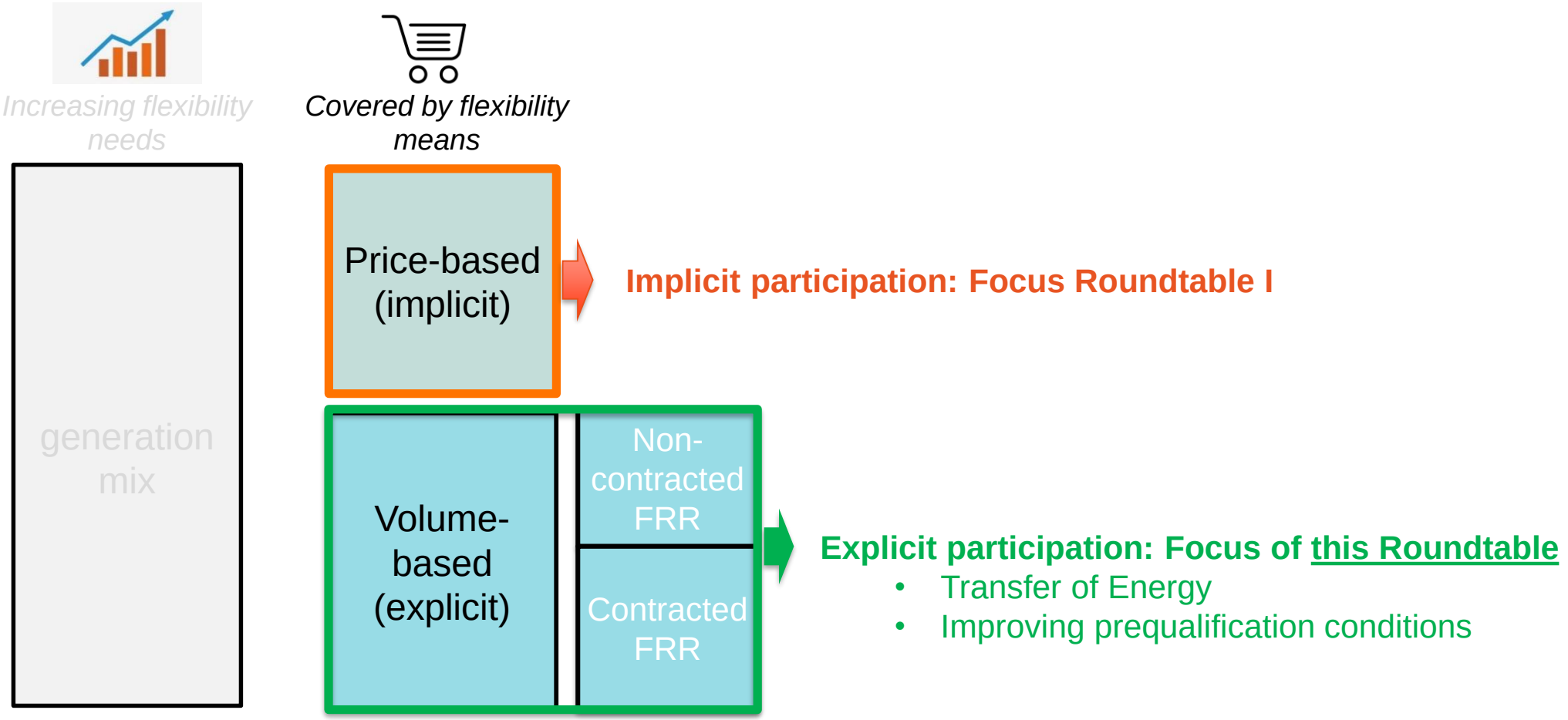
Contracted FRR

Maximize implicit contribution by
- Adequate price signals (RTP)
- Reduced ‘design entry barriers’ (EOEB)

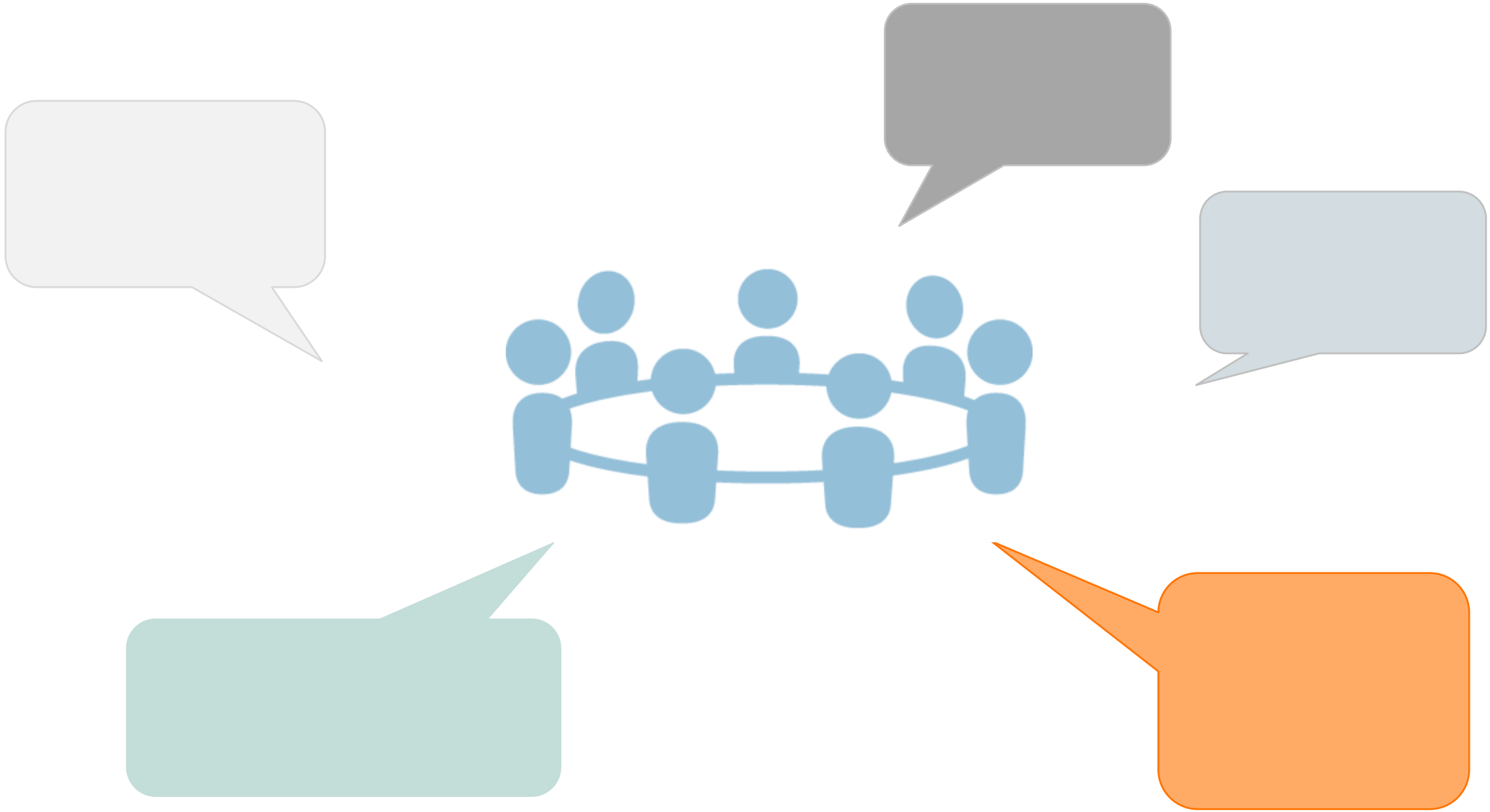
Maximize non contracted reserves by taking into account
- Free bids
- XB flexibility

Minimize costs of contracted reserves by
- Bring new flexible assets to the market via CCMD
- Reduce both administrative and technical entry barriers

Let's now discuss the administrative and technical entry barriers for explicit participation

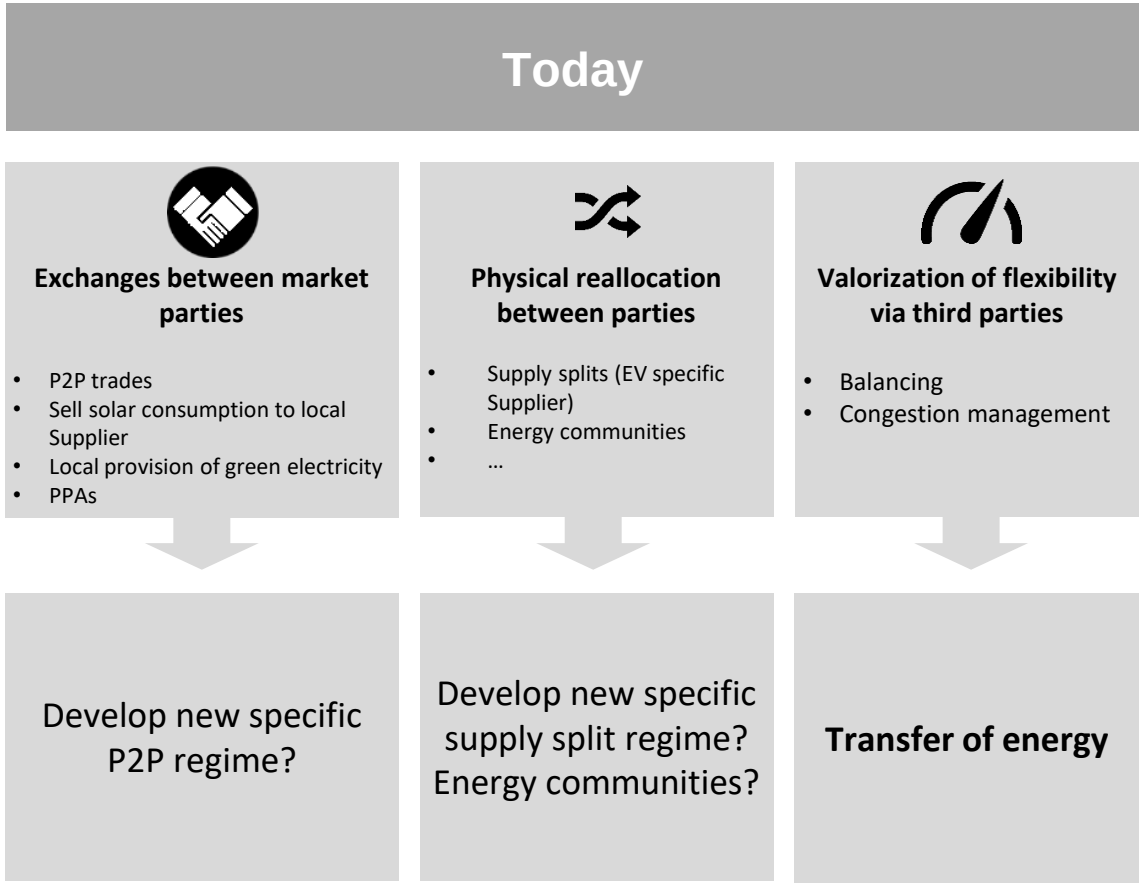


Are there any remarks?



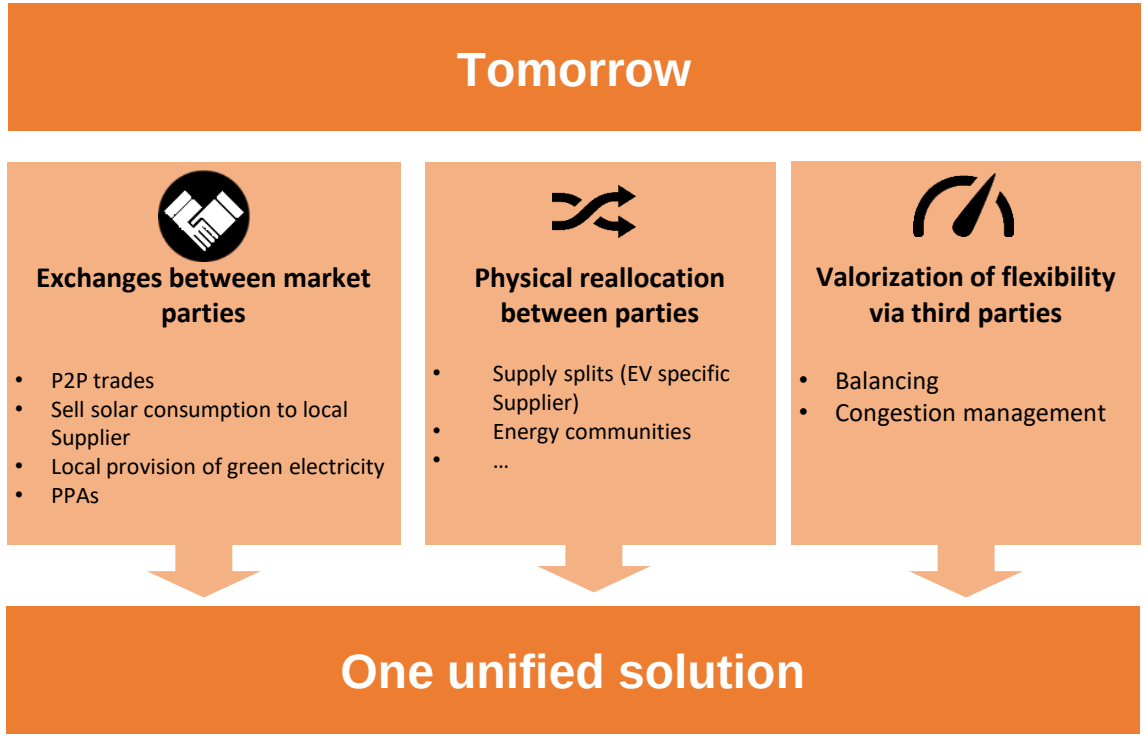
Transfer of Energy

We need to avoid to develop new solutions on top of the existing ones as this would lead to a fragmentation of # regimes



New services (P2P, split supply, balancing, …) would only be able to be developed by those big parties that have the capability to manage the administrative complexity linked to such a fragmentation of different solutions (as we already notice today)

Instead we need a simple and comprehensible framework, so that new actors can easily enter and develop new consumer centric services



To support the development of these new services, we need a mechanism that allows to exchange energy on a 15 minute basis between grid users (at all voltage levels) and other market parties.

CCMD enables third party SPs to take over the complete management of the load (supply split) or alternatively valorize only the flexible part of it

Tomorrow

Exchanges between market parties

- P2P trades
- Sell solar consumption to local Supplier
- Local provision of green electricity
- PPAs

Physical reallocation between parties

- Supply splits (EV specific Supplier)
- Energy communities
- …

Valorization of flexibility via third parties

- Balancing
- Congestion management

SP becomes Supplier of the asset and can easily valorize the flexibility of it
(both implicitly and explicitly)

SP only valorizes the flexible part of the load, while the energy supply remains with the head Supplier

Service providers can easily develop all-inclusive business models per asset (ex. heat as a service), or alternatively chose to purely focus on the flexibility part of the load.

In essence, the paradigm shift from “Supplier-centric” to “Consumer-centric” calls for a ‘local-mindset’ when it comes to the settlement of these services

Tomorrow

Exchanges between market parties

- P2P trades
- Sell solar consumption to local Supplier
- Local provision of green electricity
- PPAs

Requires a **local exchange between parties** so the Supplier is no longer accountable for the delivery of the energy that was bought (or sold) elsewhere

Physical reallocation between parties

- Supply splits (EV specific Supplier)
- Energy communities
- …

Requires a **local re-allocation via EOEB** so the volume is correctly allocated to the correct Supplier

Valorization of flexibility via third parties

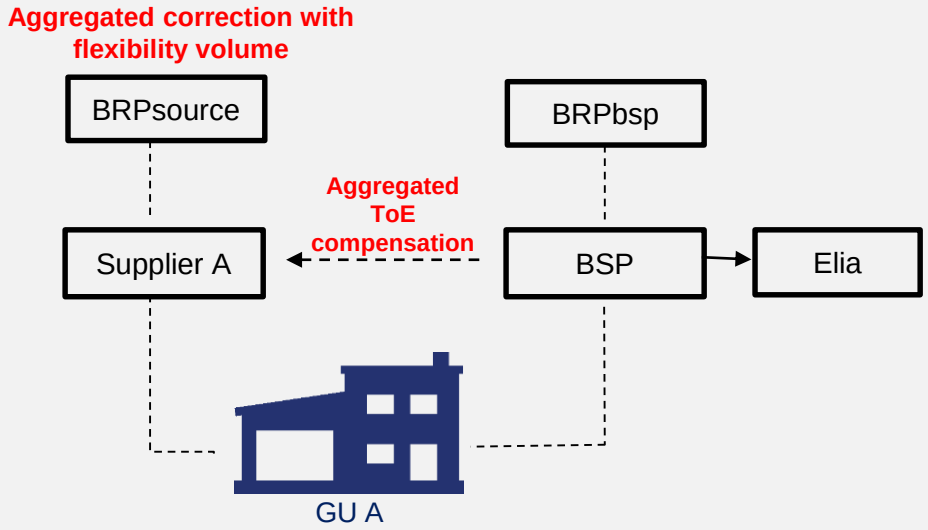
- Balancing
- Congestion management

? Why not work with a **local correction instead of aggregated?**

What if we do Transfer of Energy via a local correction ? And what do we need for this?

How does ToE currently work for MV and HV grid users?

Example



Baseline consumption	Inj	0
	Off	100
Activation	Reduction 10 offtake	
Real metered consumption	Inj	0
	Off	90

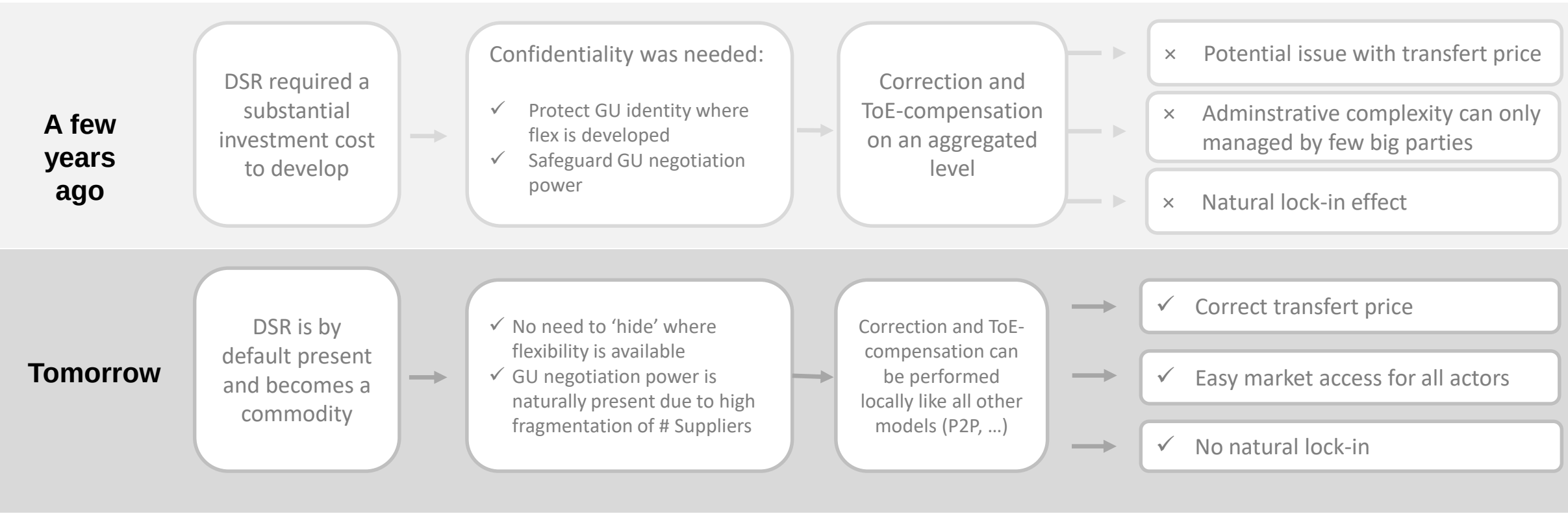
1. Supplier A sources 100 MW on the electricity market to cover the expected consumption of grid user A

2. At the moment of delivery, the BSP activates 10 MW of flexibility by demanding a decrease in net-offtake of the GU

3. Instead of consuming the expected 100 MW, the GU consumes 10 MW less than foreseen**.** As a result:
   - Supplier A can no longer invoice the foreseen 100MW
   - BRPsource is left with an imbalance in his perimeter

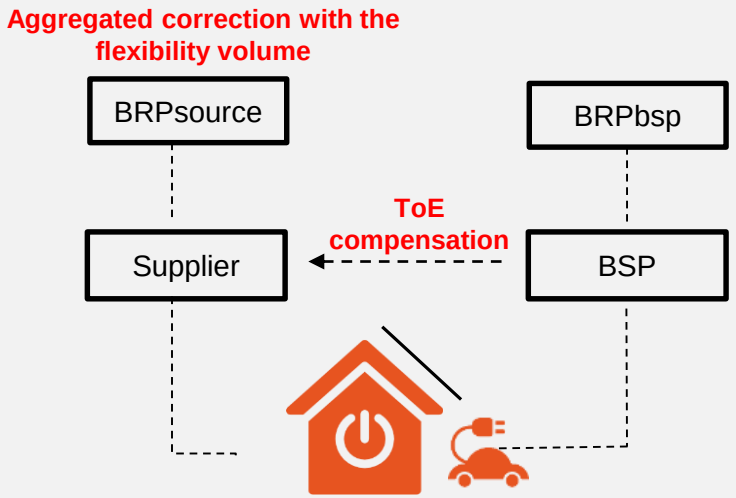
4. ToE prescribes that the intervention of an FSP may not be detrimental to other parties. This implies:
   - An **aggregated correction** of the perimeter of the BRPsource with the flexibility volume
   - An **aggregated compensation** between FSP and the Supplier for any sourced but not sold energy

In which context was ToE developed and does this apply on low voltage level as well?

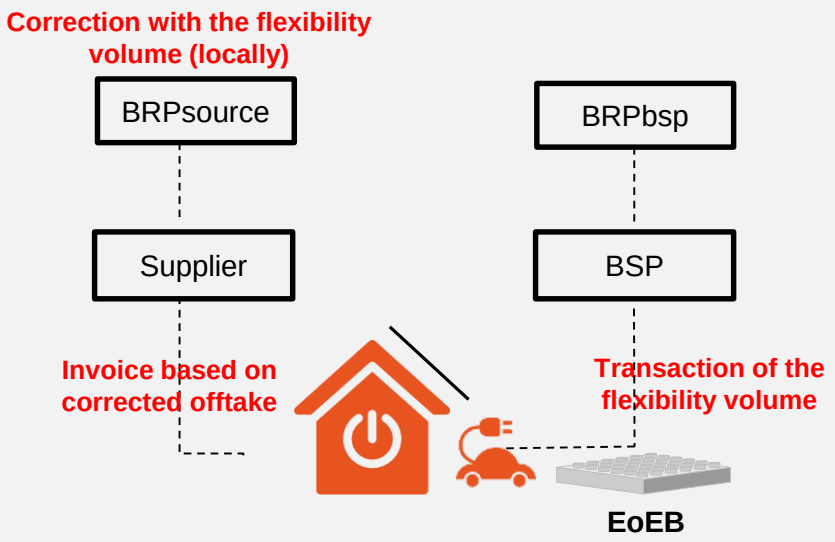


How would such a local correction look like conceptually speaking?

ToE today
centralized correction (Edel)

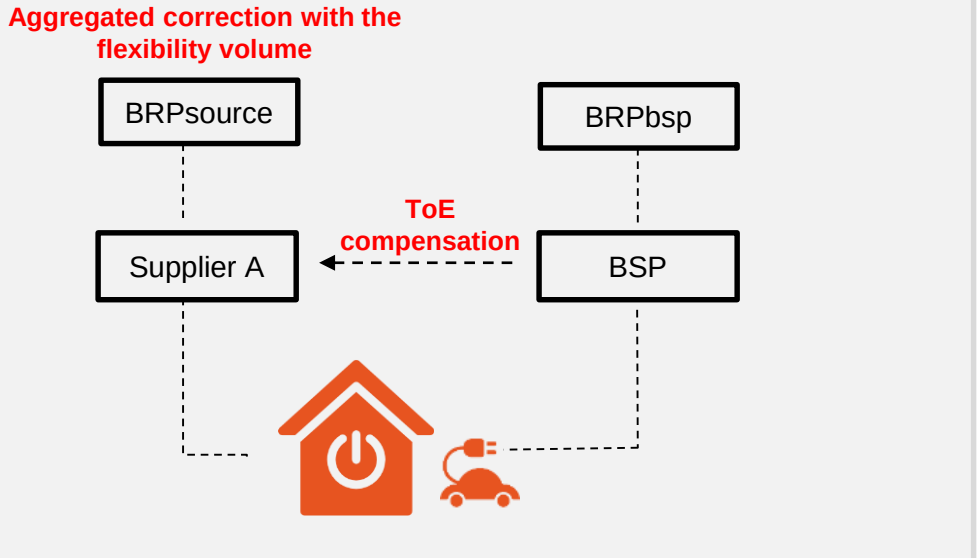


EoEB tomorrow
local correction (Ereq)



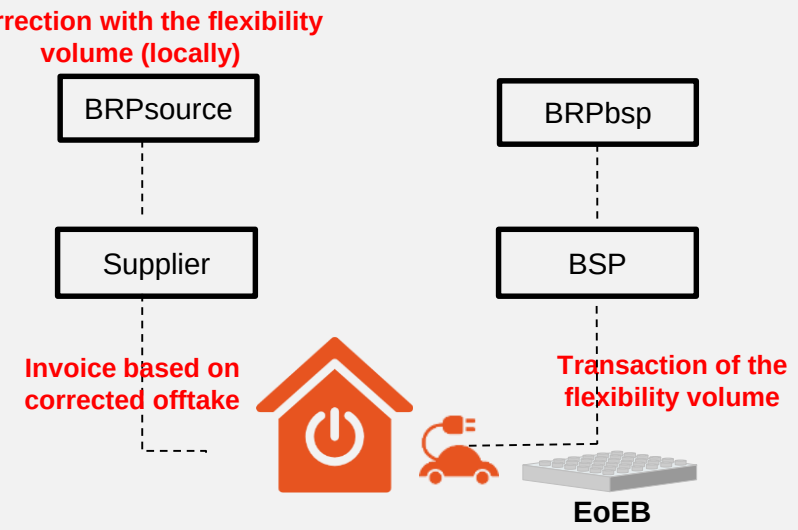
The same example applied on a residential end-consumer

ToE today



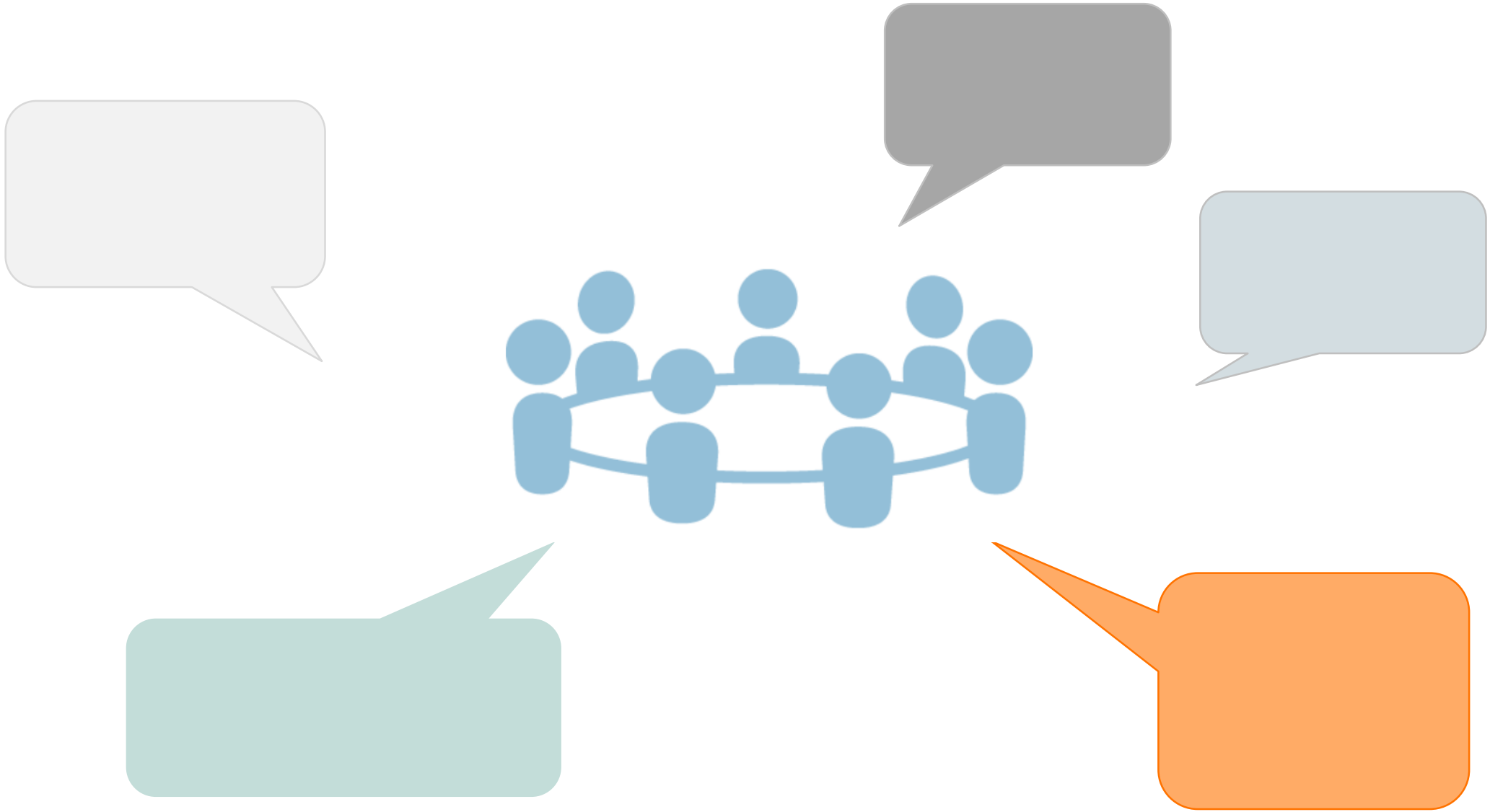
Baseline consumption	Inj	0
	Off	100
Activation	Reduction 10 offtake	
Real metered consumption	Inj	0
	Off	90

EoEB tomorrow



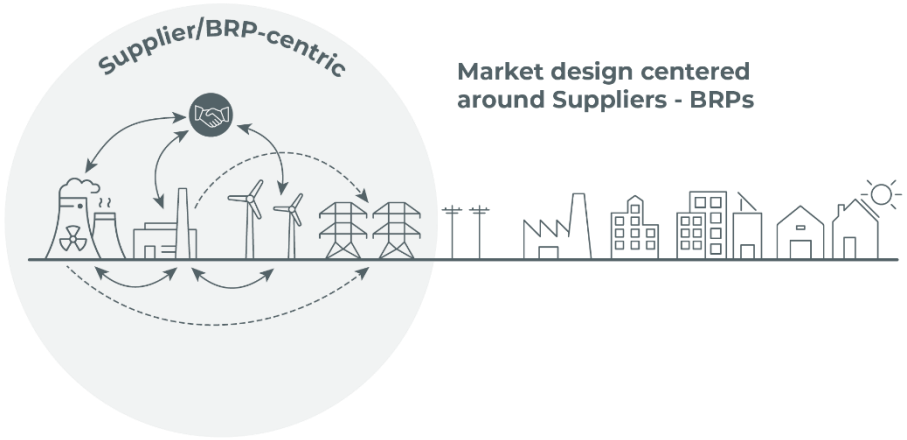
Baseline consumption	Inj	0
	Off	100
Activation	Reduction 10 offtake	
Real metered consumption	Inj	0
	Off	90
Corrected offtake	Off	100 (= 90 +10)

Open discussion

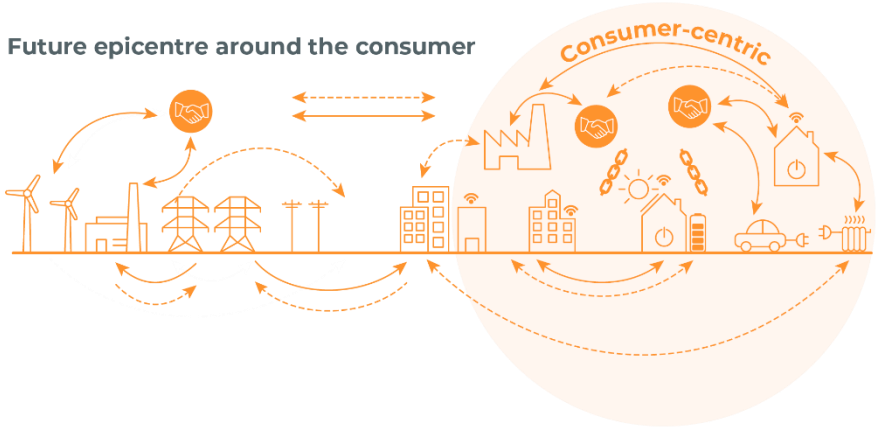


Prequalification conditions in the balancing market

Need for changing prequalification requirements



Few assets delivering **large volumes** of flexibility



Many assets delivering **small volumes** of flexibility

Transition needed from an individual prequalification approach to a **more pragmatic, flexible approach**

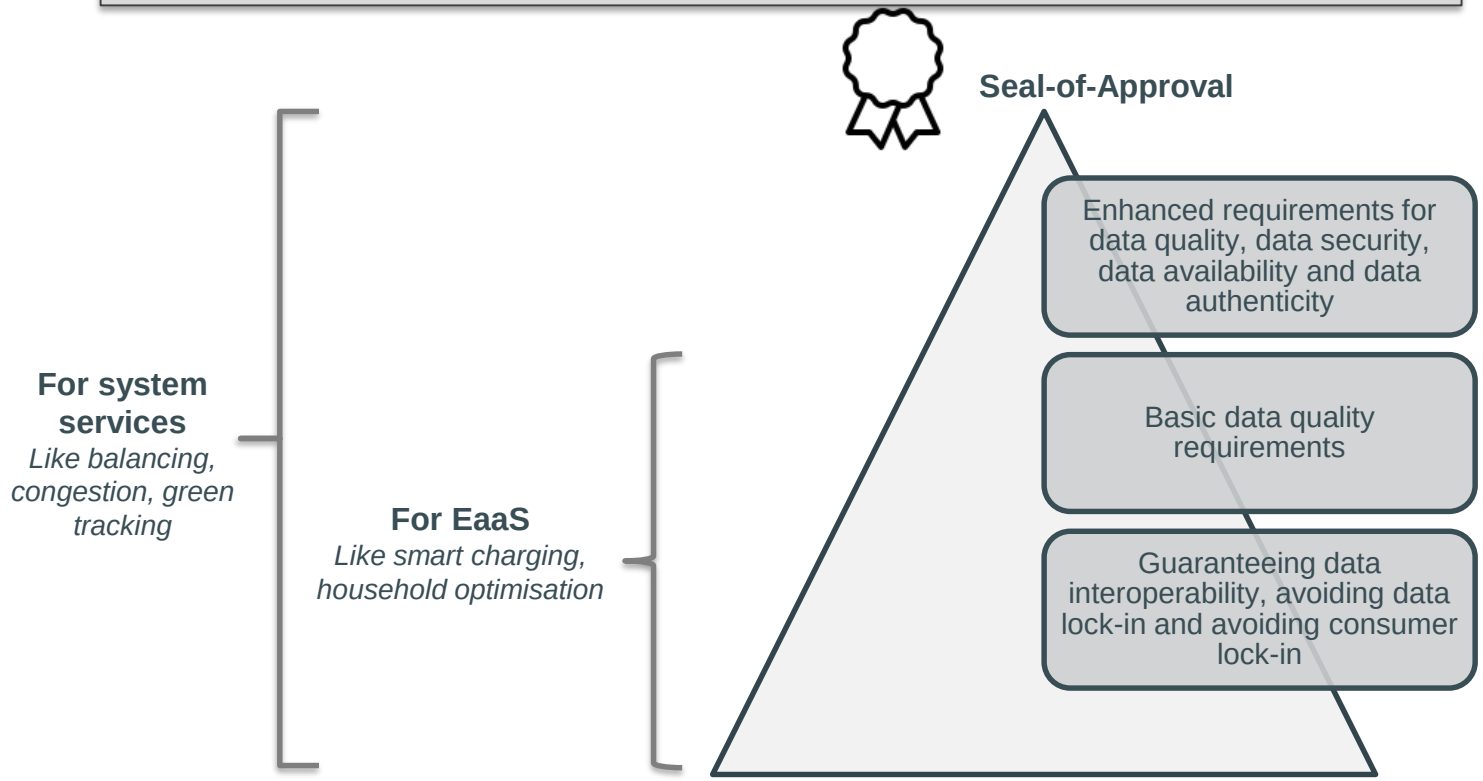
Enabler 1 – Model based approach

Model based approach based on the **seal-of-approval** for **commercial submetering**

Easier **onboarding** of asset through **DiD** & **VC concepts**

Enabling more **dynamic pool management**

Prequalification will happen on model level so that assets belonging to a particular model are allowed to participate to certain services based on the Seal-of-Approval defined by system operators



Important note: The seal-of-approval is not mandatory for participation to the EaaS market but should act as a guidance for service providers and consumers

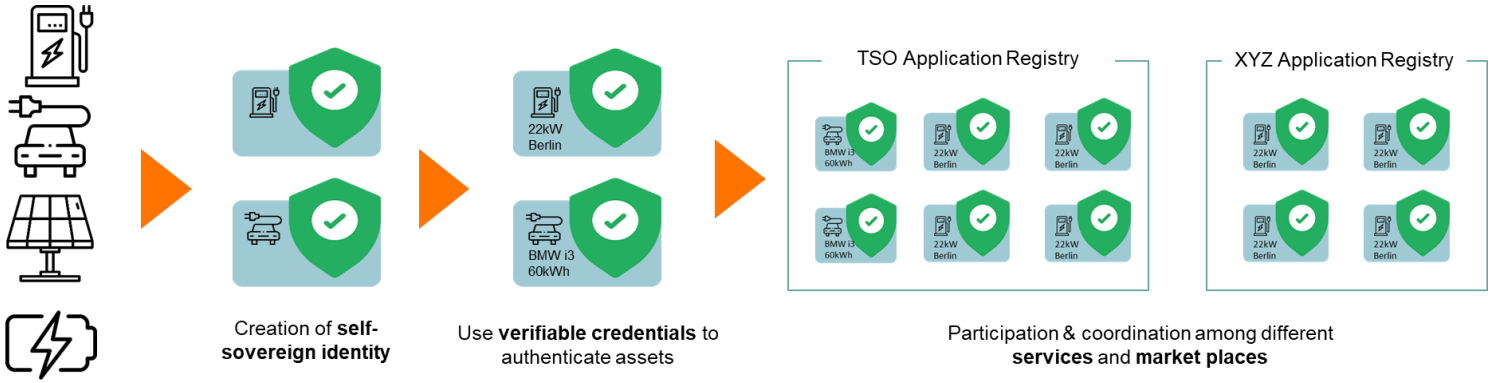
Enabler 2 – Easier onboarding

Model based approach based on the **seal-of-approval** for **commercial submetering**

Easier **onboarding** of asset through **DiD** & **VC concepts**

Enabling more **dynamic pool management**

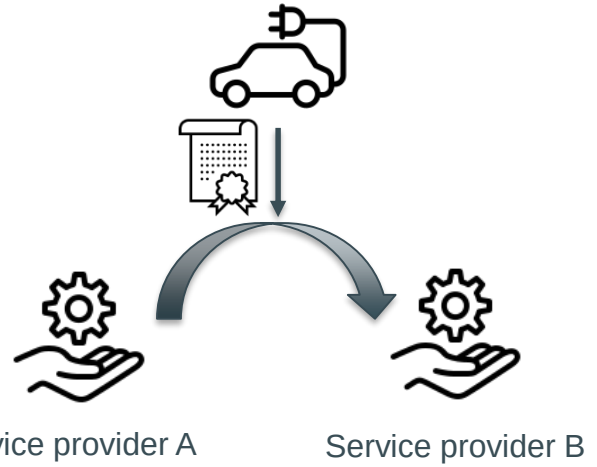
Using DiD & VC, allows easier activating services on assets and avoiding double counting through another service provider



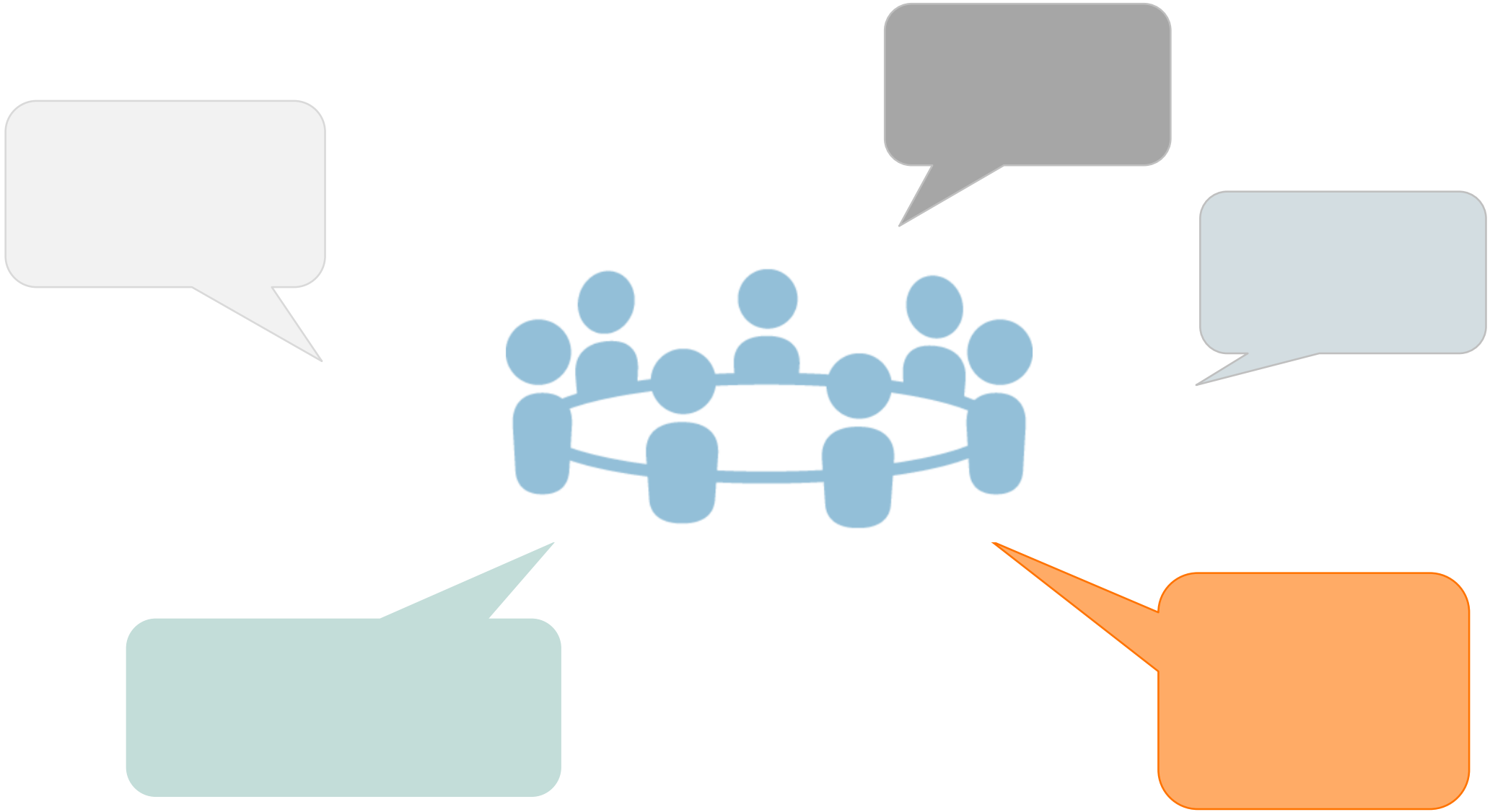
Enabler 3 – Dynamic pool management

- **Model based** approach based on the **seal-of-approval** for **commercial submetering**
- Easier **onboarding** of asset through **DiD** & **VC concepts**
- Enabling more **dynamic pool management**

Consumers should be enabled to switch easily from service provider meaning that a service provider should also be able to easily modify its pool and not go through an extensive prequalification process



Open discussion



CCMD oriented Usecase Overview (BE)

Elia, in cooperation with many partners, has started several usecases studying the design, answering open questions & identifying which enablers are needed to support CCMD

Functionality driven usecases current focus

Usecases aiming at **answering open design questions** & defining the needs for the EoEB HUB. We try to cover all product types.
Together they define the functionalities that are needed in the enabling processes & systems.

Technology driven usecases

Usecases aiming at implementing state of the art technology required to have a high performing, low costs platform. (DiD, decentral technologies,…)

These Usecases will serve as basis for the targeted implementation of CCMD

Overview of usecases focusing on the functionalities – BE

	Product Type	Focus Learning area's Relevant to CCMD	Timing Q1 2022 – Q2 2022 – Q3 2022 – Q4 2022
SolarToYou	P2P transactions	EoEB, Balancing obligation, Data	
ODYSSEE	Energy community – Behind meter supply	EoEB, Grid Fee, Balancing obligation, Transparancy	
EV Experience	Behind the meter supply	EoEB	
Octopus	RT Prices	Real-time price, Consumer protection	
IO.Flexity 2.0	Ancillary services	ToE, Data	

Usecases supporting answering questions & validating solutions

Study design & implementation

Begin: Q1 2022

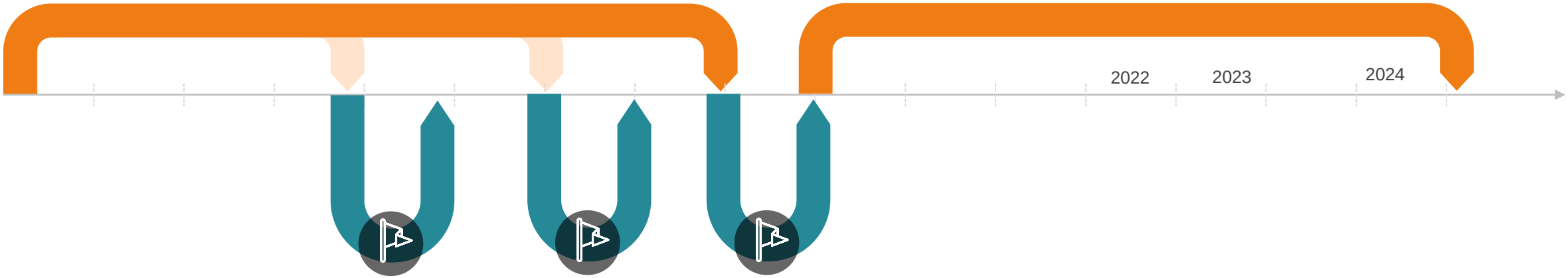
6-9 months

Technology focused

Executing existing usecases & services

Begin: Q1 2022

1 year



Ad Hoc Q1-Q3 2022

Usecase round tables

Present usecase
Theoretical approach
Learnings during usecase

HACKATHON

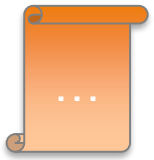
Accelerating consumer-centric energy services

13-14-15 Oct 2021

Hackathon Datasets - prepared by Elia

USB Key
Each team will receive a USB key with all datasets in csv/xlsx files

APIs
A list of interesting/ available APIs will also be provided on the USB key



Notes
Short explanatory notes will be provided on the USB key

Data Booth
Anything you need?
We'll try to get it to you!
Come and see us at the data booth

A. Personas	A few "typical consumers", and their preferences
B. Profiles	Historical profiles of ~50 households (and assets connected behind) Real-time feed from 4 Belgian houses
C. Economics	A model of the electricity bill calculation of the end consumer, with all related parameters and price information (including historical market prices)
D. Elia Building blocks	The Solar2You App, a few building blocks (API's) allowing to run the Energy Services of the future
E. Publicly available data	Energy production, consumption, prices, weather, outages, forecasts,…
F. Support material	User accounts, design templates

Hackathon facts and figures – participants and feedback

Very high interest:
- 100+ individual registrations: corporate (14) and student (8) teams
- 14 mixed groups during the hackathon

All challenges were choosen:
- **Winner:** GreenBid (Ordina team)

Their solution had S2Y as basis and was extended with the with possibility to sell your access energy to a community. A feature where you can choose to charge a specific asset at a certain price was added as well.
- **Runner-up**: Nextlab/Aaltra/SPICE Academy

They focused on the smart steering of assets, contrary to many HEMs where individual dongles at asset level are installed, they focused on the development of an algorithm that was able to steer assets based on P1 data. The management system can be active or passive and will give advice on the use of the steerable assets based on the real time price.

Main feedback during the hackathon:
- Reactions on the design were positive
- Need for clarity about roles and responsibilities and implementation

Next steps:
- Discussions ongoing with winner and runner up's to start a collaboration
- Berlin Hackathon 10/2022

Next steps to achieve our ambitions

Q2 2021

CCMD Whitepaper
Making the CCMD vision public

Involve stakeholders:
CCMD info session
Explain & Clarify

Hackathon
Involve market parties

CCMD round tables
Collect feedback

Q3-Q4 2021

2021 - 2022

Usecases
Demonstrate, test & learn , focus funtions

Involve stakeholders:

Usecase Round tables
Present approaches for specific issues treated in usecases/demonstration projects

Q1-Q3 2022

~Q3 2022

Design & Implementation note
Elaborating on design & implementation

Involve stakeholders:

Round tables Design
Present & discuss the implementation

Q3-Q4 2022

GO Live TSO grid

End 2023

GO Live DSO grid

End 2024